

BORDEAUX RNA CLUB SEMINAR

Friday, September 21th 2011

At the European Institute of Chemistry and Biology



Programme

11.00 – 12.00 *Unexpected twists and turns in transcription by RNA polymerase I*



Dr. Joost Zomerdijk, Centre for Gene Regulation and Expression, College of Life Sciences, University of Dundee, Dundee, UK

Abstract: Ribosomal RNAs, synthesized by RNA Polymerase I (Pol I), are key components of ribosomes, each cell requiring millions of copies to sustain cell growth and proliferation. The research in my laboratory is directed towards understanding the molecular mechanisms of transcription of ribosomal RNA genes. We are also interested in the control of ribosomal RNA transcription in mammalian cells at different stages of the transcription cycle and exploring the potential for alteration of the rDNA transcription levels to change cell fate. In the production of rRNAs at the rDNA, Pol I cycles from its initial recruitment to initiation of transcription, promoter escape, elongation, termination and re-initiation, and any of these steps is exquisitely controlled to balance production of rRNA with demand for ribosomes. I will be presenting some of our latest research into key aspects of these processes.

12.00 – 13.00 **Lunch (mandatory registration at u869@inserm.fr)**

13.00 *microRNA-based nanoplatform*

Ahissan Aimé, Université Bordeaux Segalen, Inserm U869

Abstract: MicroRNA (miRNA) are short endogenous, non coding RNA (18-25 nucleotides length) that regulate gene expression by interacting with their target (mRNA) in the cytosol. It results in mRNA cleavage or in its translational repression. miRNAs are involved in most essential cellular processes, developmental biology but also in several diseases like cancers and correlations between miRNA expression levels and the onset of cancer have been widely evidenced.

To date, a great challenge in biology is to detect, localize and follow in real time miRNA in a living cell. However, the huge task of elucidating the role of these biomolecules and their mutual interactions with proteins in a given cell still require new approaches involving new tools.

In this context, we are developing a new nanoplatform based on the outstanding properties of fluorescent semiconductor nanocrystals known as quantum dots (QDs) and amphiphile oligonucleotides.

13.30 *What can provide calorimetry for nucleic acid studies ?*



Pr. Anne Bourdoncle, Inserm U869, IECB, Bordeaux

Abstract: After introducing the basic principles of the calorimeters available in our laboratory, I will present our studies of complexes between nucleic acids and proteins. Then I will give a quick overview of what is possible with calorimetry and of the limits of these machines

14.00 *Inhibition of oncogenic microRNAs with small molecules as a therapeutic strategy against gastric carcinoma.*



Pr. Cathy Staedel, Inserm U869, Bordeaux Segalen, Bordeaux

Abstract: MicroRNAs (miRNA), small non-coding RNA that post-transcriptionally regulate gene expression, are deregulated in cancer cells; some are either tumor suppressive or oncogenic. miRNA constitute prognostic and diagnostic markers for cancers, as well as targets for anticancer therapy. We aimed at targeting embryonic stem cell specific miRNAs that are oncogenic in several cancers, including gastric cancer. Using a human gastric carcinoma cell line, grown either in vitro or in vivo as xenograft in mice, we propose to target these oncogenic miRNAs with either 8-mer antisense oligonucleotides, interfering with the miRNA functions, or aminoglycoside-nucleobase conjugates interfering with their biosynthesis.